

Furthermore, the Unit is now making continuing studies of the degree to which the examinations, as applied in the field, actually prove to be effective in measuring the qualifications of public health workers. The states have been coöperative in returning results to the Unit for analysis, and a number of experimental projects have been undertaken for evaluation purposes. Two hundred Visiting Nurse Association staff nurses were, for example, given a suitable examination and their scores were compared with supervisors' ratings. Six schools of public health nursing have given an appropriate examination to their students and compared scores with the students' final grades. Such investigations make it possible to say that the examinations prepared do, in fact, perform the task they are designed to perform—namely, to select the most highly qualified of the candidates and to rank examinees in order comparable to their ability as determined by some independent measure.

Out of the accumulating experience of the Merit System Unit have now emerged certain clear-cut goals toward which future activities of the Unit might profitably be directed. Among these are: extension of the Unit's services to city and county civil service systems to provide them with sounder bases for the selection of public health personnel; increasing the availability of examination material to schools of basic and special training in public health where it may be used as a tool for evaluating both students and curriculum; finally, and of major importance, enlargement of the Unit's services to the states to include duplicating, scoring, and analysis service, and the appointment of a field representative of the Unit whose function it would be to familiarize states with the services of the Unit, to strengthen the relationship between Merit System Unit agencies and official public health groups, and supply the Unit with information which would be valuable in the preparation of examinations.

REFERENCES

1. Burney, L. E., and Hemphill, F. M. Merit System in Public Health. *A.J.P.H.*, 34:1173, 1944.
- Atwater, R. M., and Long, L. D. New Methods for the Selection of Public Health Personnel. *Canad. Pub. Health J.*, 36:1, 1945.

THE CENTENARY OF PANUM

IT is historically true that our modern theory and practice with regard to the control of communicable disease actually developed on the basis of Pasteur's laboratory studies of bacteriology. It is often forgotten, however, that the essential clues to an understanding of this problem had already been unravelled by three pioneers in field epidemiology before an epidemic among silkworms led Pasteur on from the study of fermentation to that of contagious disease. By 1860, Panum, Snow, and Budd had laid the basis on which a sound system of control would undoubtedly have been built, even if the germ theory had not been demonstrated by bacteriological experimentation.

In this connection Panum's work was less significant than that of his two English contemporaries because it dealt with a disease which had generally been accepted as contagious since the 14th century; although Sydenham never mentions its contagiousness and it was held by many that measles could at times arise spontaneously. It was, however, the intestinal diseases, typhoid and cholera, spread by water and in other indirect ways, which formed the real battleground between contagionists and miasmatisists; and it was on this battle front that the victories of Snow and Budd were won.

Nevertheless, Panum's study was of major significance; and it was the first really complete and convincing contribution of modern field epidemiology. The occasion was an epidemic of measles in the Faroe Islands where there had been no cases of this disease for 65 years so that when infection was introduced in 1846, more than 6,000 of the 7,782 inhabitants fell victims to it. In villages where the epidemic occurred at all, 19 out of 20 persons were attacked. J. A. Doull estimates the total death rate at 23 per 1,000.¹

Peter Ludwig Panum, before he had completed his full hospital training, was sent out with A. Manicus to study the situation. As Panum said in one of his later papers, "The circumstances under which the disease was observed were so favorable that similar ones were rarely, if ever presented to an observer." The largest community on the islands had only 800 inhabitants. In general, the population of the area was so separated in the coastal valleys of seventeen islands that each tiny settlement was an isolated community in which the history of the disease could be studied independently. Panum obtained complete data on the spread of the epidemic in fifty-two such areas. By observations repeated from village to village, he established the incubation period of the disease as 13-14 days. He concluded that infection had generally occurred when the primary case was in the eruptive stage. He was led by his observations to doubt the prevalent view that the period of desquamation was infectious, having failed to find a single case traceable to exposure after the disappearance of the rash.

Panum was inclined—though with some hesitation—to accept the spread of the contagion by clothing and other fomites; and he furnishes good evidence of the lasting immunity acquired in measles, having himself interviewed ninety-eight old persons who had had previous attacks and all of whom escaped in 1846.

Panum has no curiosity as to the nature of the infective agent—certainly no conception of a *contagium animatum*. He apparently holds to the conventional view of contagion as due to gaseous emanations—"exhalations from the patient which are strongest during eruption and on the first day of efflorescence, and the peculiar acidulous odor of which is most characteristic at this time." On one point, however, he was crystal clear. He says, "If among 6,000 cases, of which I saw and treated 1,000 myself, there was not a single one in which it was justifiable to attribute the affection to a miasmatic origin, while at the same time it was everywhere clear that the disease had spread from man to man and from village to village by means of the contagium (be it by direct contact with an ill person or by infected clothing and the like) then one is certainly justified at least to doubt very much the miasmatic nature of the disease."

Panum's later career was a distinguished one. He was appointed professor of physiology, medical chemistry, and pathology at Kiel in 1852, and later filled a similar post at Copenhagen. He was a pioneer in the laboratory study of physiology and pathology and made notable contributions to medical education. He was probably the leading figure in the Scandinavian medicine of his time.

Panum's claim to a place in the Valhalla of Medicine rests, however, upon his publication in Danish in 1846 and in German in 1847 of his "Observations made during the Epidemic of Measles on the Faroe Islands in the year 1846."¹ The episode would be hard to parallel in the history of medicine. Here was a boy just out of medical school who wrote one of the classics of our science. True, the opportunity was a unique one; but the way in which Panum utilized this opportunity was equally remarkable. The diligence and discrimination with which he collected his data and the logic and objectiveness with which he analyzed and

interpreted these data were well-nigh flawless. They could not have been improved upon by a Budd or a Frost at the height of his maturity. We do well to remember Peter Panum in 1946.

REFERENCE

1. Panum, P. L. *Observations Made During the Epidemic of Measles on the Faroe Islands in the Year 1846*. Delta Omega Society, 1940.

Fellowships for Engineers and Physicians

Announcement is made by Surgeon General Thomas Parran of the U. S. Public Health Service that a grant for the establishment of 125 Fellowships to train sanitary engineers and physicians in public health has been approved by the National Foundation for Infantile Paralysis. These fellowships are similar to those for health educators, announced in the May, 1946, issue of the *Journal*.

Each Fellowship provides a year's graduate training in a school of public health or a school of sanitary engineering. The Fellowships will be administered by the Committee on Training of Public Health Personnel, which consists of representatives of schools of public health, the State and Territorial Health Officers, the American Public Health Association, and the U. S. Public Health Service.

The Fellowships are available either during the academic year beginning in the fall of 1946 or the fall of 1947, and are open to men and women, citizens of the United States under 45 years of age.

The purpose of the Fellowships is to aid in the recruitment of trained public health engineers, health officers, and directors of special medical services to help fill some of the 300 vacancies for public health engineers and 900 vacancies in public health medical positions existing in state and local health departments over the country. The Fellowships are reserved for newcomers to the public health field, and are not open to employees in state and local health departments, for whom federal grants-in-aid are already available to the states.

Applicants for Fellowships may secure further details by writing to the Surgeon General, U. S. Public Health Service, Attention: Public Health Training, 19th and Constitution Avenue, N.W., Washington 25, D. C. Owing to the anticipated heavy enrollment in graduate schools, completed applications for training in the fall term of 1946 should be filed promptly. The awards committee will act on applications on the following dates: July 15 and August 1.